NOTE XX.

ON BUBALUS MINDORENSIS HEUDE

BY

Dr. F. A. JENTINK.

December 1894.

(Plates 8, 9, 10 and 11).

The Dutch consul at Manilla, Mr. P. K. A. Meerkamp van Embden, presented to our Museum a male and a female specimen of the Mindoro-buffalo, both adult and with skeletons, besides a young individual. They have been shot at the foot of a mountain, called Halcon, in the vicinity of the Dulayan-river, Mindoro-island. This series, more complete than is to be seen in any other Museum, enables me to procure informations concerning this highly interesting animal, more extensive than has been done before.

The first description of the »Tamarao" — as the natives call it — has been given by le Père Heude [1]) in the following terms: »On rencontre à Manille des crânes d'un petit buffle provenant de l'île de Mindoro. Le Musée de l'Université a un animal monté. C'est une miniature du buffle ordinaire. La couleur est la même; c'est le même pelage. *Les pieds sont blancs*, et l'on voit au bas du devant du cou le croissant ordinaire....

M. Sainz de Baranda, Directeur des Eaux et Forêts aux

1) Mémoires contenant l'Histoire naturelle de l'Empire chinois par des Pères de la Compagnie de Jésus. Chang-Hai.

Tome II, 1888, p. 50: Note sur le petit Buffle sauvage de l'île de Mindoro (Philippines).

Philippines, m'a procuré un superbe crâne de Buffle de Mindoro. Malheureusement la préparation lui a fait perdre les prémolaires supérieures: le maxillaire inférieur a ses rangées molaires intactes. La taille de cet animal est très réduite; mais son caractère spécifique le plus intéressant, et qui frappe les yeux les moins exercés, est le peu d'ouverture et la convergence finale des cornes. Elles sont d'un buffle pour tout le reste; j'entends d'un buffle sauvage. C'est le commencement de la série générique dont le grand Arni de l'Inde est la fin: un maximum et un minimum. Je propose de nommer cet animal *Bubalus mindorensis.*

Je ne puis accepter l'opinion de Gray (P. Z. S. 1878, p. 882) rapportée par M. Bartlett, qui la partage, que cet animal est une variété du buffle ordinaire."

This very specimen in the Dominican College of Santo Tomas has been examined in the same year 1888 by Prof. J. B. Steere. He called the animal »Tamaron" and saw that the head was that of a calf of the species and that the skin of a young Buffalo had been used for the remainder of the specimen, although he was not so certain of the latter [1]). As he procured three full-grown individuals, he could give a more detailed description, as taken from the animals when first killed [2]).

The chief characteristics mentioned in Steere's description in P. Z. S. L. are the following: »*a greyish-white stripe running from near the inner corner of the eye towards the base of the horn (this stripe three inches long by one inch wide), a greyish spot above each hoof on all feet and a greyish-white patch on inner side of lower fore leg.* General colour of skin and hair *black* [3]). Several of the last vertebrae of the tail aborted."

Somewhat different sounds Steere's description of the same animals in his *list* of the year 1890, p. 29. We

1) P. Z. S. L. 1888, p. 414.

2) L. c. and Steere, a list of the birds and mammals collected by his expedition to the Philippines, 1890, p. 29.

3) I italicize.

are informed there: »that the adults (of the *Tamarou* [1]) are *lead black, with whitish markings upon the face, neck, legs and undersurface*" [2]). As to the bony parts Mr. Steere remarked: »the *chief sexual differences* [2]) noted were the thicker neck and horns of the bull, the bases of the horns being also nearer together than in the female". He adds, »that a calf apparently of five or six months old is chestnut in color". It is evident that Mr. Steere merely has *seen* the mentioned calf, for his collection contained (P. Z. S. L. 1888, p. 414) only adult specimens and no calf viz.: an old bull—length from point of nose to tip of tail eight feet one inch; an old cow—length eight feet; a fullgrown young bull—length eight feet two inches.

Description of the old male and female of about the size of Mr. Steere's specimens: hair short, appressed and of a black color; innerside of lower part of the legs blackish brown; the hairs along the spine are somewhat longer and more closely set. The direction of the hairs on the back is a highly interesting one, viz.: the hairs of the anterior part are directed foreward, those of the middle backward and those of the posterior part successively foreward, downward and backward, resulting from whirls of hairs placed to the right one halfway between the shoulderblade and the haunch and one just before the haunch; to the left one above the shoulderblade, a smaller one between the shoulderblade and the haunch and a third one just before the haunch. The hairs along the spine are directed foreward till between the whirls before the haunches and from there backwards and continuous with the thinly spread hairs of the basal part of the tail. Above each hoof on all feet a large whitish patch, two on each leg. Outer side of ears black haired, long white hairs protrude from the innerside of the ears. At a distance behind the angle of

1) *Tamaron* as well as *Tamarou* is wrongly written, the native-name is *Tamarao*.

2) I italicize.

the mouth and perpendicular under the eye is to be seen in the male (absent in the female) a white patch with some elongated hairs; just between these patches, that is to say on the chin, lies another white patch, both in male and female. A rather broad whitish colored band runs from the shoulders towards the dew-lap; another much shorter and smaller one on the throat: these two bands are not developed in the female-specimen before me. The tail ends in a well developed tuft of black hairs.

Our specimens seem to be of somewhat the same size as Mr. Steere's animals, especially as his old male: the length of the horn of the male, measured along the curve, is 360 Mm., distance between the tops 275 Mm., in our old female 315 Mm. and 155 Mm.

Greatest length of ear 185 Mm., greatest width of ditto 125 Mm.

Mammae 4.

Description of the calf, a male, apparently a couple of months old: general color a fine chestnut; upperparts of head black; from between the black-haired ears runs a rather broad black stripe or band along the spine to the tail, which itself is black, except its underside of which the basal part is chestnut colored; the tail ends in a well developed tuft of long black hairs. Fore legs black, hind legs blackish brown; a slight trace of light spots above the hoofs. A narrow black stripe from hind legs towards the belly. The broad whitish stripe near the inner corner of each eye is as well developed as in the adult specimens; it is the only representative of light colored parts on the face: on the chin is a yellow brown colored patch occupying the place of the white ditto of the old specimens. A very diffuse trace of the lower of the two above mentioned bands. No trace of horns.

Description of the bony parts: the skull has been described and figured by Dr. B. Hoffmann [1]): this first known

1) Abhandlungen und Berichte des K. Zool. und Anthr. Ethn. Museums zu Dresden, 1887, p. 28, Tafel N°. 3, figs. 6*a* bis *f*.

skull afterwards has been compared with the skull of Mr. Steere's N°. 3, a fullgrown young bull, in Dr. Heller's »Inaugural-Dissertation" [1]); Dr. Heller adds a series of measurements of the different parts of the Dresden-Museum-skull, which apparently is that of an adult male-specimen as the measurements of the different bones agree very strikingly with those of our old-male-skull, which measurements differ so widely from those of the female-skull — as I will explain below — that it may be called impossible to confound them, and I am convinced that palaeontologists would regard the two sexes as two quite distinct species, if of the animal merely the skulls without horns were known.

Now a few words concerning the skeleton: there are 13 dorsal vertebrae with 13 ribs, on the top of each spinous process is a bony excrescense, diminishing in size towards the lumbar vertebrae, which latter are 6 in number: in the female-skeleton the first lumbar vertebra at the left bears a *movable* well developed rib (Plate 11), long 290 Mm., its broadest part measures 25 Mm. The sacral vertebrae are five in number. There are 18 or 19 caudal vertebrae, the last ones being deformed. Very different in form are also the three first caudal vertebrae in the male and the female.

The ribs are very broad, the broadest measuring fully 55 Mm.

The sternum is composed of 7 pieces — the last segment differently shaped in male and female —, ending in a xiphisternum in the shape of a sickle.

With respect to the frontal bones the horncoves are inclined backward, in the female more than in the male; the frontal bones are convex in the male, concave in the female; the nasals measure 144 Mm. in the male, 155 Mm. however in the female (Plates 8 and 9). In the male the bony palate ends in one line with the last molars, in the

1) l. c. 1889, p. 32.

female much more backward; the vomer in the female is of about double the size of that bone in the male and is much more prominent; the posterior palatine foramina are placed much more backward in the female than in the male (Plate 10). The coronoid processes are more curved in the female than in the male, and in the female the incisor-series is much more inclined foreward. I recorded here a series of sexual differences, there are however still a great deal more which are as striking by comparing the skulls as it is difficult nay impracticable to describe with sufficient accuracy.

Considering the peculiar white markings the *Tamarao* reminds strongly the *Anoa*; it is as it were an enlarged edition of the *Anoa*, but the molars — as has been pointed out by Dr. B. Hoffmann — the broad ribs, the horns and the thinly spread coarse hairs remind the true *Buffalo*, so the size and some cranial peculiarities. As the *Buffalo*-characteristics are preponderant, I call it provisionally with Père Heude *Bubalus mindorensis*, although I confess that there is reason to the supposition that it perhaps once may be demonstrated to be merely a hybrid between *Bubalus bubalus* and *Anoa depressicornis*. This can be made out by cross-breeding and therefore is a problem to solve by Directors of Zoological Gardens and I recommend this most scientific inquiry very much to those gentlemen. If later on it appears that the *Tamarao* is not a hybrid, than I think it needs a new generic title, as it is neither a true Buffalo nor a true Anoa.

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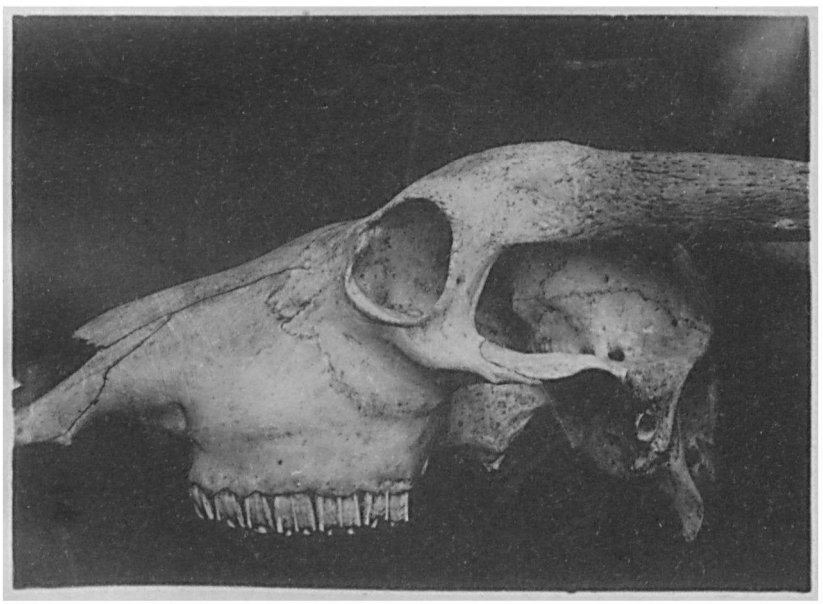

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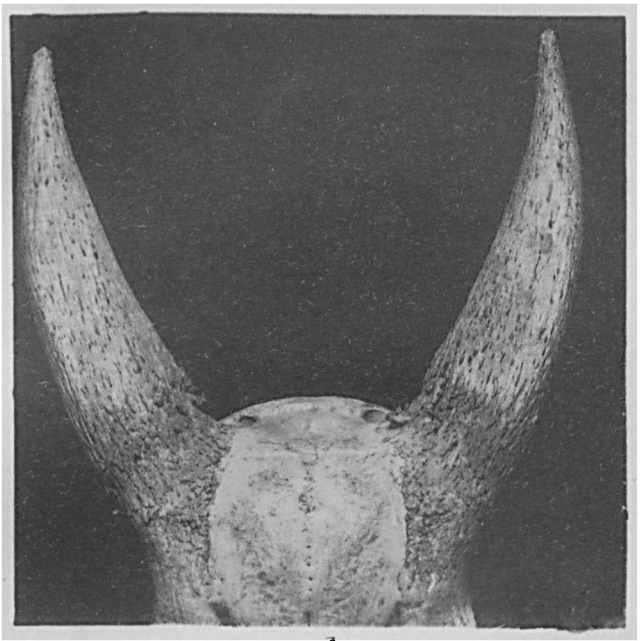
Dr. R. Horst ad. nat. phot. Lichtdruk van Emrik & Binger, Haarlem.

Bubalus mindorensis *Heude.*



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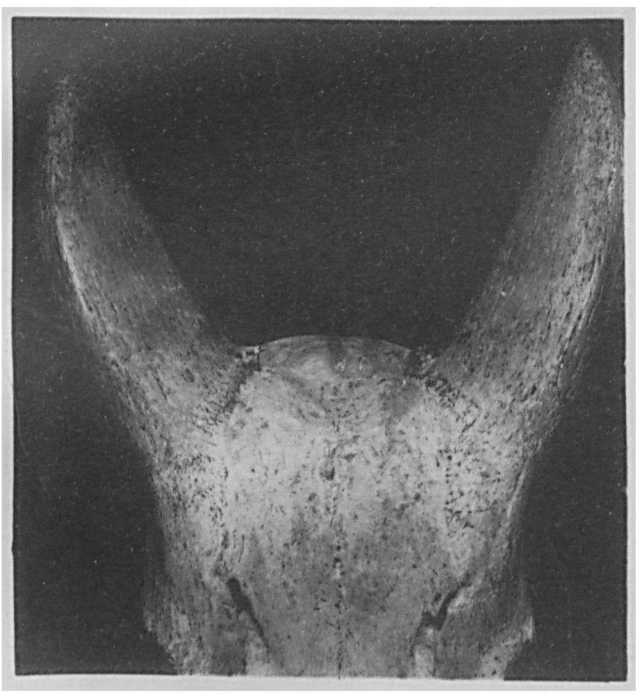

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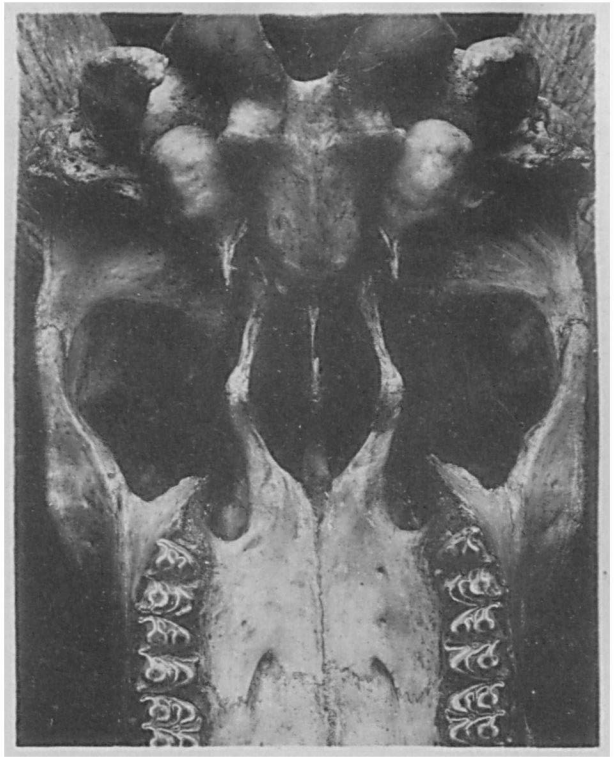

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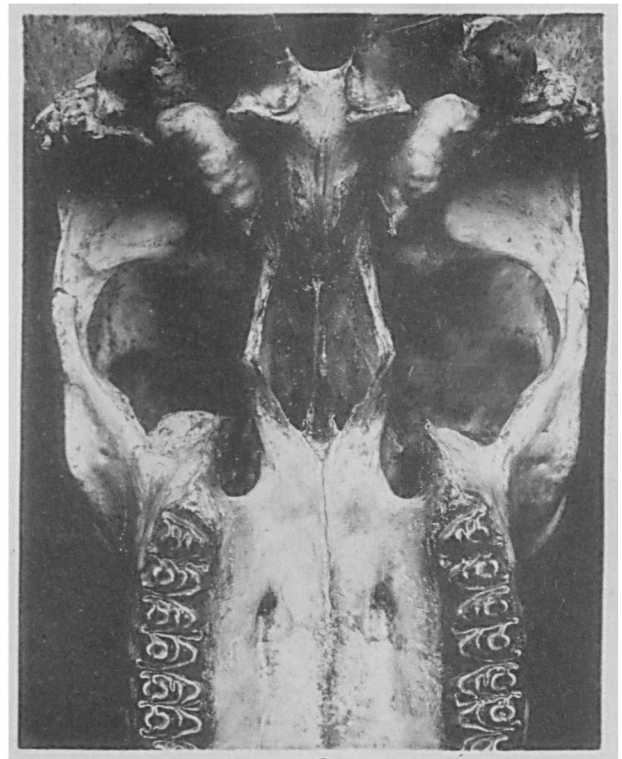

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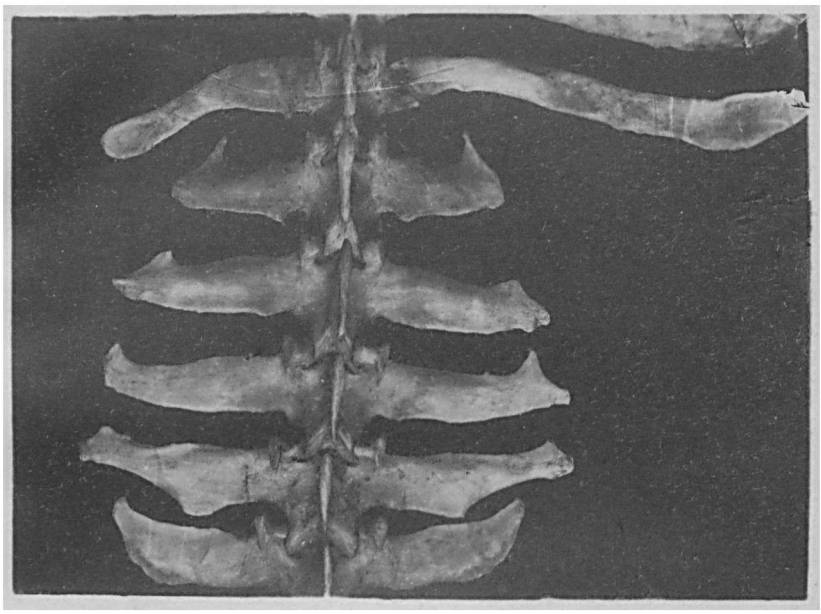
Bubalus mindorensis *Heude.*



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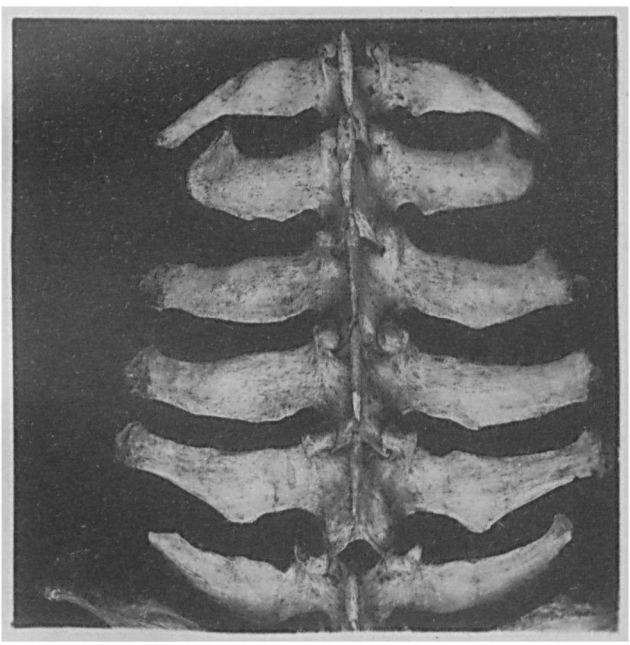

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